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ABSTRACTS

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ABSTRACTS

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ABSTRACTS

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1. An Overview on Exploitation of Male Sterility for Development of Hybrids and Seed Production in Hot Pepper

P. R. Kumar*, S. K. Lal[1], Shiv K. Yadav[2], P. L. Saran and I. S. Solanki

Indian Agricultural Research Institute, Regional Station, Pusa, Bihar- 848 125

[1&2]Division of Seed Science and Technology, IARI, New Delhi -110 012

**E-mail: ourprk@gmail.com*

ABSTRACT : Male-sterility in chilli was documented for the first time in the 1950's. Since then, considerable knowledge has been accumulated on the nature of the trait, the means of its identification, induction, inheritance of both genetic and cytoplasmic genetic male-sterility, maintenance of inbreds, and their potential for breeding hybrid cultivars. Heterosis for various economic traits like; maturity, fruit weight, size, number and total yield have been utilized. Today, several internationally known seed companies and research institute use the genetic mechanism [msms] on a large scale for producing hybrids of sweet pepper, whereas the cytoplasmic genetic sterility [(S) Rf rf] is used mainly for breeding pungent hybrids. The possibilities of exploitation of male sterility for crop improvement as well as production of F_1 hybrids have been reviewed and discussed in the present paper. Biochemical as well as biotechnological aspects of this phenomenon has also been vividly reviewed.

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2. Intercropping for Efficient Rresource Utilization in Indian Agriculture : A Review

P. S. Kashyap[1*], Alka Verma[2] and Stefan Siebert[3]

[1]Department of Soil & Water Conservation Engineering, GBPUAT, Pantnagar -263 145

2Departmet of Vegetable Science, GBPUAT, Pantnagar -263 145

[3]Institute of Crop Science and Resource Conservation, Bonn, Germany

****E-mail:** pskashyap@yahoo.com*

ABSTRACT : In India, agriculture is driven by small and marginal farmers mostly and hence effective land utilization is an only way to get more harvest and simultaneously targeting important upcoming environmental problems, including reduced soil fertility and reduced biodiversity. Intercropping of two or more crops is an age old practice in India especially under rainfed conditions. The most common advantage of intercropping is to produce a greater yield on a given piece of land by achieving more efficient use of the available growth resources that would otherwise not be utilized by each single crop grown alone. Cereals, oilseeds, legumes, cash crops like sugarcane and horticultural crops; all can be efficiently used in intercropping for taking advantage of ecological balance, more utilization of resources, increasing the quantity and quality of harvest and reducing damage by pests, diseases and weeds simultaneously.

Published in : *HortFlora Research Spectrum,* 3 (4) : 310-314 (December 2014)

3. Development of Ready-to-Fry Frozen Potato Snack and Its Quality Evaluation During Storage

Sukhpreet Kaur* and Poonam Aggarwal

*Department of Food Science and Technology, Punjab Agricultural University, Ludhiana-141 004, Punjab, *E mail: sukhpreetnagra1@gmail.com*

ABSTRACT : A simple technique for the preparation of ready-to-eat frozen potato snack was developed which do not require any costly machinery. Snacks were prepared using standardized formulation with 100 g mashed potato and 30 g boiled mashed peas. The prepared snacks were par-fried, packed in LDPE and stored under frozen (-20±2°C) storage for three months to study the shelf life and quality attributes of the product. All the nutritional parameters remained unaffected during storage upto three months within the cultivars studied Snacks prepared from 'K.Pukhraj' showed the highest total antioxidant activity. Snacks prepared from 'K.Chipsona-1' had lower oil uptake than from 'K.Pukhraj'. Rancidity parameters in terms of free fatty acids and peroxide value remained unaffected during the entire frozen storage period. The developed product from all the three cultivars were found to be highly acceptable for up to 3 months of storage without any change in sensory quality.

Published in : *HortFlora Research Spectrum,* 3 (4) : 315-322 (December 2014)

4. Effect of Planting Distance on Growth and Frond Production in Boston Fern [*Nephrolepis exaltata (L.) Schott*]

Parminder Singh and R.K. Dubey

Department of Floriculture and Landscaping, Punjab Agricultural University, Ludhiana 141 004, Punjab.
**E-mail:parminder.flori@pau.edu*

ABSTRACT : Studies were conducted to optimize planting distance for frond production in Boston fern [*Nephrolepis exaltata* (L.) *Schott*]. The suckers were planted at a spacing of 30 x 30 cm, 30 x 45 cm, 45 x 45 cm, 45 x 60 cm and 60 x 60 cm, in the month of March, 2012 under net house conditions which provided 50 per cent shading. Planting density had significant effect on plant spread, frond length, mean lamina length and leaf area. Increase in planting density (30 x 30 cm) led to increase in frond production per unit area but with regard to the production per plant, it was at par in all the spacings where row to row distance was 45 cm i.e. 45 x 30 cm, 45 x 45 cm and 45 x 60 cm. Number of fronds per plant increased as the plants were widely spaced, highest being recorded at 60 x 60 cm. The fronds produced from wider spaced plants were of superior quality in terms of length and strength of the stem. Quality parameters, *viz.* length of longest frond as well as fresh and dry weights of fronds was observed to be higher with closer spacing. Frond production per plot and yield per hectare exhibited significant increase with decreasing plant spacing. Planting density did not affect longevity of the fronds. Considering the yield of fronds per hectare, cost of production and net return, 30 x 45 cm spacing is recommended for the cultivation of Boston fern.

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5. Impact of Seasonal Variation Flux on Growth, Leaf Phenology and Fruit Development in Nagpur Mandarin of Jhalawar District

Prerak Bhatnagar*, Jitendra Singh and C.B.Meena

College of Horticulture and Forestry, Agriculture University Kota Campus Jhalarapatan, Jhalawar-326 023, Rajasthan, India.
**E mail: prerakb_22@*yahoo.co.in

ABSTRACT : It may be inferred that during early bearing phase of Nagpur mandarin, the major contribution of vegetative growth was from spring and rainy season flushes. In the early bearing phase of Nagpur mandarin, the extent of seasonal vegetative growth was maximum in spring flush (45.03%) followed by rainy season flush (42.02%), however, the winter fall flush comprised only scanty flush of the annual vegetative growth to the tune of 10.75% only. Likewise, spring flush leaves exhibited the minimal values of leaf sclerophylly i.e. leaf fresh weight and dry weight, density of foliar tissue and leaf succulence with respect to rainy and winter season flushes inferring that growth during spring season is utilized as a sink for developing fruits. About 72 per cent of the fruit radius was found contributed by peel thickness in I phase of fruit growth. During phase II, fruit growth was found dependent upon increase in pulp tissue thickness contributing about 81 per cent of the total fruit weight. Finally, during III phase of maturity and ripening there was comparatively decreased rate of increase in fruit weight and size and little bit increased rate of dry weight, rind thickness and reduction in moisture percentage.

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6. Growth and Yield of *Kharif* Onion (*Allium cepa* L.) as Influenced by Dates of Planting and Cultivars in Red and Laterite Zone of West Bengal

Smaranika Mohanta* and Joydip Mandal

Department of Crop Improvement Horticulture and Agricultural Botany,
Institute of Agriculture, Visva-Bharati, Sriniketan - 731236 (West Bengal), India
**E-mail: smaranika.swapna@gmail.com; joydip_hort@rediffmail.com*

ABSTRACT : An experiment was conducted at Horticulture Farm of Institute of Agriculture, Visva-Bharati, Sriniketan (West Bengal) to find out the optimum planting dates and cultivars of onion suitable for *kharif* season in this region. The treatments consisted of four dates of planting (15th and 30th August and 15th and 30th September) and five cultivars (Agrifound Dark Red, Arka Kalyan, Arka Niketan, Indam Marshal and Red Stone). The experiment was laid out in factorial randomized block design with three replications. There was a significant increase in growth of plants and size of bulbs when planting delayed from August to September. The overall performance of *kharif* onion in red and laterite belt of West Bengal was highly satisfactory with average

bulb yield 171.1q/ha. Data revealed that the cultivar Agrifound Dark Red when planted on 30th September gave superior result in almost all yield parameters and yield.

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7. Effect of Plant Spacing and Nitrogen Levels on Quantity and Quality Characteristics of Asiatic Lily (*Lilium* spp.)

R. S. Vedavathi, B. Manjunatha, M.G. Basavanagowda, K.S. Thippanna and Ravishankar M. Patil*
KRC College of Horticulture, Arabhavi 591 218, TQ., Gokak, Karnataka, India
**E-mail: ravishankar.horti@gmail.com*

ABSTRACT: A field experiment was carried out as a Factorial Randomized Complete Block Design (RCBD) with 3 replications at UHSB, COH, Mudigere. Different plant spacing (30x15 cm, 30x30 cm, 40x15 cm) was the first factor and the second factor was the different levels of nitrogen (0, 100, 150 and 200 Kg/ha). The spacing between plants of 30x15 cm and 200 kg per ha of N had a significant effect on quantity and quality characteristics of Asiatic lily. Data showed that the plant spacing of 30x15 cm with nitrogen application of 200 Kg per ha obtained the maximum qualitative and quantitative characteristics of flowers.

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8. Optimization of Fertigation Schedule for Cut Chrysanthemum (*Dendranthema grandiflora* Tzvelev)

S. Ganesh*, M. Kannan and M. Jawaharlal
Department of Floriculture & Landscaping, Tamil Nadu Agricultural University, Coimbatore – 641 003, Tamil Nadu, India.
**E-mail: ganes4u@gmail.com*

ABSTRACT : A greenhouse study was conducted in 2013 to optimize the fertigation schedule for cut chrysanthemum var. Amalfi. The experiment was laid out in a randomized block design (RBD) consisting of nine treatments with three replications which included fertilizer levels at 75, 100, 125 and 150 per cent of recommended dose of fertilizers along with foliar spray of 0.2 per cent EDTA chelated micronutrient mixture to each of the fertilizer levels. The results revealed that 75% recommended dose of fertilizers @ 12:3:12 g NPK/m^2 along with 0.2 % EDTA micronutrient mixture as foliar spray significantly enhanced the growth, physiology and yield parameters. Also increased recommended dose of fertilizers i.e., 100 % per cent improved the total leaf area per plant, soluble protein content, flower diameter, flower stalk length and girth. Though certain flowering parameters were recorded high in 100 % RDF, Yield contributing parameters like plant height, root length and fresh weight, total chlorophyll contents, earliness in flowering, yield/m^2 and vase life showed superiority in 75 % RDF along with foliar spray of 0.2 per cent EDTA chelated micronutrient mixture.

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9. Effect of Post-Harvest Application of Diphenylamine on Storage Life and Quality oF Punjab Beauty Pear

Sumanjit Kaur * and W. S. Dhillon
Fruit Research Station, Gangian (Dasuya), Punjab Horticulture Post Harvest Technology Centre, PAU Ludhiana
**E-mail: sumanjito@rediffmail.com*

ABSTRACT: The study was conducted to assess the effect of antioxidant on post-harvest quality of pear fruits cv. Punjab Beauty with treatments of DPA (500, 1000 and 1500 ppm) during storage. After treatment the fruits were packed in corrugated fibre board (CFB) cartons and then stored in cold storage at 1-3°C temperature with 90-95% RH for 45, 60 and 75 days. The observations revealed that pear fruits treated with higher concentration of DPA i.e. 1500 ppm recorded lowest physiological loss in weight, spoilage losses, core browning and fruit colour degradation. Same concentration of diphenylamine (DPA) maintained higher fruit firmness, TSS, reducing sugars and acidity throughout storage period. With the prolongation of storage period physiological loss in weight (PLW%), spoilage percentage, core browning, fruit colour degradation, total soluble solids and reducing sugars followed an upward and acidity showed downward trend. Diphenylamine

treated fruits could be cold stored for 75 days in CFB cartons with lowest weight loss, spoilage and better fruit quality. Fruits under control showed higher spoilage and shriveling due to loss of weight and firmness.

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10. Effect of Pre-Harvest spray of MH and Storage Conditions on Quality of Bulbs of Spider Lily (*Hymenocallis littoralis* L.) *cv. Local*

Nilima Bhosale[1] and A.V. Barad[2]

[1] Department of Horticulture, College of Agriculture, Baramati (Pune), Maharastra

[2.] College of Agriculture, Junagadh Agricultural University, Junagadh (Gujarat)

**E-mail: avbarad55@gmail.com; avbarad@jau.in*

ABSTRACT : The present experiment on storage of bulbs of spider lily (*Hymenocallis littoralis* L.) cv. Local was carried out at Department of Horticulture, College of Agriculture, Junagadh Agricultural University, Junagadh during 2011-2012. The experiment consisted of six levels of pre-harvest MH spray with four levels of storage conditions and it was laid out in Factorial Completely Randomized Design (FCRD) design with three replications. Pre harvest spray of MH 3000 ppm was found to be more effective for reducing weight of bulbs, size of bulbs, physiological loss of weight, sprouting of bulbs and spoilage of spider lily bulb. Similarly, biochemical parameters like TSS, total sugars, reducing sugar and non reducing sugar were also found better in MH 3000 ppm for storage of bulbs. During storage the bulbs should be kept in plastic carets at an ambient temperature having good circulation of air in the store room.

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11. Irrigation and Mulching Effects on Lemon Peel Properties

Savreet Khehra*

Punjab Agricultural University, FASS, Amritsar-143001, Punjab, India.

**E-mail: savreetz@gmail.com*

ABSTRACT : The peel is a natural package that protects the flesh from insect and microbial invasion and limits water loss and gas exchange. Marketing of lemon depends on the peel quality, thus, for the peel to become marketable, it must form and develop with few defects and be resilient enough to maintain its integrity on the tree and during postharvest storage. Moisture regulation is of utmost importance to get aimed fruit quality in lemon. As lemon is challenged with serious problem of fruit cracking which is directly related with peel parameters so timely scheduling of irrigation and moisture conservation needs to be emphasized on priority. To study the impact of moisture regulation, an experiment was laid out in Randomized Block Design comprising of six irrigation treatments with and without mulching at "Punjab Government Progeny Orchard & Nursery, Attari, Amritsar" during the fruiting years 2005 and 2006. Use of black polythene as mulch in combination with frequent irrigation after 3 days influenced the peel parameters the most.

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12. Integrated Disease Management for Late Blight and Bacterial Wilt in Potato at Different Locations of Arunachal Pradesh

K. M. Singh, R. C. Shakywar* and M. M. Kumawat

Department of Plant Protection, College of Horticulture and Forestry, Central Agricultural University, Pasighat -791102, Arunachal Pradesh

**E-mail: rcshakywar@gmail.com*

ABSTRACT : The demonstration programme of bio-control based IPM in potato was carried out at three locations of East Siang district of Arunachal Pradesh. Potato variety Kufri Pukhraj was used. The crops were planted at 4th, 10th and 15th November in the Farmer's practice, untreated control plot and IPM practice, at Jhampani. At Oyan, the crop was planted on 31st October in the Farmer's practice, 5th November in both untreated control plot and IPM practice and at Sille the crop was planted on 19th, 20th and 20th October in the IPM practice, Farmer's practice and untreated control plot, respectively. The crop was harvested at 90 days after planting. However, at 50 DAP, no significant difference was observed between the three treatments at Jhampani and between farmer's practice (4.00%) and control (10.00%) at Sille. Farmer's practice field recorded significantly lower incidence of late blight than the other two treatments in all the three locations at both 50 and 60 DAP. Highest incidence of the disease (70.07 per cent leaf area damage) was observed in untreated control (Sille) at 60 DAT. IPM practice recorded 20.60, 15.87 and 44.67 per cent leaf area damage at

60 DAP at Jhampani, Oyan and Sille and were significantly lower than the untreated control in their respective locations. The outcome compared with all the locations, Oyan was found better and also significantly superior over rest of the location against bacterial wilt incidence of potato.

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13. Effect of Nitrogen Sources and Phosphorus on Bulbs and Bulblets Production of Tuberose cv. Double

A.P.S. Gangwar*, J.P. Singh and I.P. Yadav

Department of Horticulture,C.S.Azad University of Agri. & Technology, Kanpur-208 002

**E mail:gangawarajai5@gmail.com; ab05aug@gmail.com*

ABSTRACT : An experiment was laid during two consecutive years in Horticulture garden of CSAUA&T, Kanpur.There were three nitrogenous sources *viz.* urea ammonium sulphate and calcium ammonium nitrate,four levels of nitrogen *viz* 0,50,100 and 150 kg/ha, and four levels of phosphrus *viz* 0,100,200 and 300 kg/ha thus consisting total number of forty treatments replicated thrice in Factorial Randomized Block Design. Calcium ammonium nitrate treatments revealed greater harvest of bulbs/clump both by number (9.43, 8.97) and weight (229.90, 235.0g) and bulblets/clump (10.56,10.80 and 115.78,123.14g) in first and second year, respectively. Nitrogen @100kg/ha produced highest bulblets per clump (10.50 and 11.09) during both the years of investigation. This trend was same regarding the weight which revealed 106.60 and 115.91 g respectively. The weight of bulbs and bulblets greatly influenced by application of phosphorus at the rate of 200 kg/hectare It also induced maximum number and weight of bulblets (10.44,10.81 and 104.74,113.47 g) during both the years The highest dose of phosphorus 300 kg/ha reduced the number and weight of bulblets (10.19,10.29 and 93.75,105.60 g) during both the years of investigation.

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14. Effect of Modified Atmosphere on Bio-chemical Parameters and Shelf Life of Guava (*Psidium guajava* L.) cv. Hisar Safeda and L-49

***Chetak Bishnoi*[1*]*, R.K. Sharma*[1] *and S. Siddiqui*[2]**

[1]*Department of Horticulture.* [2]*Dept. of Food Science & Technology*

CCS Haryana Agricultural University, Hisar 1250-04, Haryana, India

**E-mail: chetak29@gmail.com*

ABSTRACT: An experiment was conducted to study the effect of different durations of modified atmosphere on bio-chemical parameters and shelf life of guava under ambient conditions. Fruits were packed in perforated polyethylene bags (LDPE) of thickness 300 gauge and then stored at 8ºC in BOD incubator for the periods 1, 2, 3 and 4 days. After respective durations of storage under MA at 8ºC, fruits were removed from MA and packed in CFB and stored at ambient temperature. Fruits were sampled at every day for various bio-chemical pigments of guava. Among different durations of MA storage, the maximum total sugars and reducing sugars was recorded in the fruits stored for 0, 1 and 2 days and minimum in the fruits stored in MA for 4 days. The fruits stored in MA for different durations maintained high phenol contents and recorded maximum phenol in the fruit stored in MA for 4 days and minimum in control fruits. Higher retention of chlorophyll was recorded in the fruits stored in MA for 4 days while lesser carotenoids were recorded in fruit stored in MA for 4 days. Carotenoids content increased and chlorophyll content decreased with the increase in storage period in both the cvs Hisar Safeda and L-49 (Sardar).

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15. Effect of Micronutrients Spray on Growth, Yield and Flower Quality of Gladiolus cv. White Prosperity

Chandra Mohan Singh* and V. M. Prasad

Department of Horticulture, Sam Higginbottom Institute of Agriculture, Technology & Science (SHIATS), Allahabad- 211007 (U. P.)

**E-mail:chandra16.1989@rediffmail.com*

ABSTRACT : The present investigation on effect of micronutrients spray on plant growth, spike yield and flower quality of gladiolus (*Gladiolus grandiflorus* L.) cv. White Prosperity was undertaken in the Department of

Horticulture, SHIATS, Allahabad. The experiment was laid out in RBD (5 x 5 Factorial), having five levels each of zinc (0.0%, 0.2%, 0.3%, 0.4% and 0.5%) and boron (0.0%, 0.2%, 0.3%, 0.4% and 0.5%), consisting a total of 25 treatment combinations. Results showed that the foliar application of boron and zinc alone at all rates and as combination significantly influenced plant growth, spike yield and flower quality with maximum value at 0.4% boron and 0.4% zinc levels. As a result of interaction between boron and zinc, the best results regarding plant growth, spike yield and flower quality were obtained with treatment combination B_3 Z_3 (B 0.4% + Zn 0.4%).

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16. Effect of Spacing and Nitrogen on Bulb Formation and Growth of Asiatic Lily under Hill Zone

R. S. Vedavathi, M. G. Basavanagowda, Ravishankar M. Patil* and K. S. Thipanna
University of Horticultural Sciences, Bagalkot, Karnataka, India
**E-mail: ravishankar.horti@gmail.com*

ABSTRACT : Bulbs of Asiatic lily (*Lilium* spp.) cv. Gironde were planted under open field condition in hill zone of Karnataka (Mudigere) to study the impact of spacing and nitrogen levels on bulb formation and growth. Treatments comprised of three levels of spacing (30x15 cm, 30x30 cm and 40x15 cm) and four levels of nitrogen (0, 100, 150 and 200 kg per ha). The plant spacing of 30x15 cm and 200 kg per ha nitrogen level showed resulting in a significant effect on weight, size and yield of bulb, and weight and number of bulblets per plant, the maximum qualitative and quantitative characteristics of bulbs and bulblets.

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17. Eco-friendly Management of Rhizome Rot (Soft Rot) Disease of Ginger under Pasighat Condition of Arunachal Pradesh

R. C. Chaturvedi*
Department of Botany, J. N. College Pasighat – 791 102, Arunachal Pradesh
**E-mail: rameshchaturvedi71@ yahoo.com*

ABSTRACT : Rhizome rot of ginger, caused by *Pythium aphanidermatum* (Edson) Fitz, is a major constraint for the production of healthy rhizome, sometimes causing total failure of crop. Chemical control of this pathogen is not economical and non-ecofriendly. Thus, the treatment with bio-control agent (*Trichoderma viride*) may offer practical and economical alternative for eco-friendly management of this disease. The lowest disease incidence (18.00 %) was recorded in T_5 - Rhizome treated with *Trichoderma viride* @ 10g/l of water + Three foliar sprays of *Trichoderma viride* @ 4 kg/ha followed by T_4-Rhizome treated with *Trichoderma viride* @ 10g/l of water + Two foliar sprays of *Trichoderma viride* @ 4 kg/ha with disease incidence of 24.33 %. The highest disease incidence (86.33%) was recorded in T_6 (control) which was raised without any rhizome treatment and foliar sprays.

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18. Effect of NPK and Potting Media on Plant Growth and Spike Yield of *Dendrobium Orchid* cv. Sonia Hiskula

Gufran Ahmad* and S. Saravanan
Department of Horticulture, Allahabad School of Agriculture, Sam Higginbottom Institute of Agricul ture, Technology and Sciences (SHIATS), Allahabad
**E-mail: gufran9415@gmail.com*

ABSTRACT : An experimental was laid out in the CRB Design having 10 treatment and 3 replications. The treatment T_9 (10:30:30 NPK + 0.3% Brick pieces + Gravel + Poultry manure) was found to be statistically significant over other treatments which recorded highest plant height (29.61cm), number of leaves (9.69), leaf area (36.11cm^2), number of new shoots per plant (4.58), shoot girth (3.16 cm), root length (16.73cm), number of root per plant (20.25), total number of spikes per plant (3.47), number of florets per spike (10.69), spike length (33.91cm), and longevity of spike (42.91 days) under shade net condition.

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19. Role of Proline as Coadjutant on Direct Regeneration of Citrus Rootstock Rough Lemon (*Citrus jambhiri Lush.)*

G. S. Sidhu[1] and H.S. Rattanpal[2*]
[1]School of Agricultural Biotechnology, [2]Department of Fruit Science
Punjab Agricultural University, Ludhiana-141 004
**E-mail:* hsrattanpal@gmail.com

ABSTRACT: At present, about 61 per cent area of fruit crops in the Punjab state is occupied by Kinnow mandarin which is mainly propagated on rough lemon rootstock. Polyembryony, sterility, poor viability of hybrid seeds, unknown mode of inheritance and long juvenility present major problems in citrus improvement through conventional breeding programme. Tissue culture and biotechnological methods provide fast improvement to a particular crop and their success rests upon the reproducible and efficient regeneration protocols. The experiment carried out on effect of proline on tissue culture aspects of rough lemon *(Citrus jambhiri)* revealed that proline might have reduced the effect of NAA and can replace ABA in direct regeneration of citrus rootstock rough lemon.

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20. Evaluation of Chrysanthemum Genotypes for Flowering Traits under Open Grown Condition

Rajiv Kumar*
Division of Ornamental Crops, ICAR-Indian Institute of Horticultural Research, Hessaraghatta Lake Post, Bengaluru 560 089
**E-mail: flori_rajiv@yahoo.co.in*

ABSTRACT : An experiment was carried out to evaluate seven genotypes of chrysanthemum for flower quality traits at IIHR, Bengaluru from 2010-11 to 2012-13. Significantly wide variation was recorded in all floral traits. Results revealed that maximum number of flowers/plant (81.51) and flowering duration (43.14 days) were recorded in Anmol. Maximum plant height (47.25 cm) and flower diameter (5.03 cm) were recorded in Garden Beauty. However, maximum average weight of flower (2.59 g) and flower yield/plant (131.43 g) were recorded in Autumn Joy. The genotype Winter Queen recorded maximum number of sprays/plant (6.89). On the basis of three years observations, genotypes Winter Queen, Garden Beauty and Autumn Joy found promising for garden display.

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21. First Evaluation of Taro (*Colocasia esculenta) Genotypes Against Leaf Blight (Phytophthora colocasiae* in Ghana

F. K. Ackah[1], G.C. van der Puije[1] and E. Moses[2]
[1]Crop Science Department, University of Cape Coast, Cape Coast. Ghana
[2]Centre for Scientific and Industrial Research, Crop Research Institute-Ghana
**E-mail: ackah_frank@yahoo.co.uk*

ABSTRACT : Taro genotypes were collected and evaluated to determine their resistance in the Aowin Suaman district of Ghana. Twenty five (25) genotypes of taro from both the Ashanti and Western Region were evaluated for six months in a location for resistance to the leaf blight disease in the study area. The Randomized Complete Block Design was used with each accession replicated three times. The results revealed that of the 25 accessions evaluated, no accession was completely resistant to the disease in the study area, though some were moderately resistant, and that the only solution to the disease is to breed for resistance.

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